

**Jeopardy Assessment**  
for the Proposed Incidental Taking Authorization of  
the Pygmy Snaketail, Saint Croix Snaketail and Extra-striped Snaketail Dragonfly  
Enbridge Energy, **Southern Access Expansion Program - Stage 1**  
Douglas, Washburn and Rusk Counties, Wisconsin

**Background**

Dragonflies are often the most conspicuous insects near any body of fresh water. They begin their lives as eggs deposited directly onto aquatic plants or dropped into the water. The eggs hatch into nymphs or larvae that live underwater where they eat other aquatic creatures. This stage can last for as long as four years for some species. The larvae overwinter in ponds, rivers and marshes and emerge in the spring as adults. As underwater larvae, they prey on small fish, invertebrates, and even other members of their own species. The adult dragonfly hunts insects including mosquitoes, midges, and other small flying insects. In turn, they themselves are food for larger fish while in their water stage, and birds will eat the younger adults. Adult dragonflies can live up to 2 months.

The pygmy snaketail (*Ophiogomphus howei*) is state-listed as a threatened species. It occurs in the Chippewa, Couderay, Eau Claire (Eau Claire Co.), Elk, Embarrass, Flambeau, Jump, Little Wolf, Menominee, Namekagon, Oconto, Peshtigo, Pike, Pine (Florence Co.), Red Cedar, South Fork Flambeau, Saint Croix, Thornapple, Tomahawk, Wisconsin and Wolf Rivers and Swamp Creek. It prefers clean, fast-flowing, small to large streams with gravel or sand substrates in largely forested watersheds.

The extra-striped snaketail (*Ophiogomphus anomalus*) is state-listed as an endangered species. It occurs in the upper Chippewa River basin in the Chippewa, Flambeau, South Fork Flambeau, Elk, and Jump Rivers; in the Saint Croix River in Burnett County; and from the Peshtigo River in Forest County. This species prefers fast-flowing, medium-sized, warm water streams (100 to 800 ft. wide) with abundant gravel and excellent water quality in heavily forested watersheds.

The Saint Croix snaketail (*Ophiogomphus susbehcha*) is state-listed as an endangered species. They prefer larger streams than other snaketails, with fast flow and clean water and with abundant cobble and gravel with sand substrates in largely forested watersheds. Larvae have only been found in deep water where wading is difficult or impossible. It is the rarest of the three species. Good populations occur in the middle Saint Croix River and the upper Chippewa River. There is a small population in the lower Saint Croix River and the species has been reported sporadically from the lower Flambeau River. These streams harbor the only known populations anywhere, despite exhaustive surveys in the upper Midwest, in past several years.

Ophiogomphus are apparently limited in distribution by the type of substrate the larvae can survive in, and are one of the least tolerant groups of aquatic insects to perturbations in water quality. Most species require clean gravel of a certain size in well-aerated warm water streams. Larvae are not found in streams with sediment-clogged gravel, reduced current, or in streams where the watershed is less than one-half to two-thirds forested. Dams, organic pollution, inorganic sediments, waterway modifications, and shoreline modifications are all factors that limit survival of this group. Photos of the three rare species described above can be seen at <http://www.dnr.state.wi.us/org/land/er/invertebrates/dragonflies/>.

## Jeopardy Assessment

Enbridge Energy has proposed the installation of a 42-inch crude petroleum transport pipeline and a 20-inch diluent return line along its existing easement. This jeopardy assessment addresses incidental take of state-listed pygmy snaketail, extra-striped snaketail and Saint Croix snaketail. During construction the project will result in temporary impacts to water quality, bed conditions and vegetation during excavation, placement and backfill of the pipeline. The project may also result in permanent impacts to the bed and banks of the waterway and vegetation because the crossing may require stabilization that changes the natural pre-construction conditions. Vegetation that grows back in the temporary workspace after construction may be different from pre-construction vegetation. Because these actions will occur at locations where potentially suitable or occupied habitat occurs, there is a potential for incidental take of one to all three of these species at the following waterways:

- Pygmy Snaketail – Namekagon, Saint Croix, Chippewa, Flambeau, Jump and Thornapple Rivers
- Extra-striped Snaketail – Saint Croix, Chippewa and Jump Rivers
- Saint Croix Snaketail – Saint Croix, Chippewa and Flambeau Rivers

The Department's Natural Heritage Inventory (NHI) database indicates the occurrence of these species within these waterways. Habitat and limited species surveys were completed in the autumn of 2006 by Enbridge within the construction footprint and 50 feet downstream. A summary of these results indicated suitable habitat at most of the crossings with the exception of the St. Croix; however, the timing and methodology use for the surveys was not optimal to adequately determine the presence of these species at or downstream of the project site.

Enbridge proposes in their application for utility waterway crossing permits (Application) submitted to the Department in August 2006 to complete crossings of the Flambeau and Chippewa Rivers using horizontal directional drilling (HDD) beneath the streambed. The HDD crossing method, if carried out successfully, is an adequate means of avoiding impact to state-listed dragonflies. However, this method is not without the potential for impact. Drilling fluids or mud may be released to the water column through fractures in rock or substrate resulting in a frac-out. If a frac-out occurs then take of the pygmy or extra-striped snaketail may occur.

Enbridge also proposes in that application to cross the Namekagon, Jump and Thornapple Rivers using the dam and pump method. This is a "dry" crossing method, which artificially diverts water around the workspace. Enbridge proposes to cross the St. Croix River using a wet trenching and sheet piling. This is a "wet" crossing method, which permits water to flow through the site and relies on sheet piling to stabilize the trench from the flowing water. Both the "dry" and "wet" crossing methods result in direct disturbance to the waterway.

The Namekagon, Flambeau, Chippewa and St. Croix River crossings are identified by Enbridge as early construction areas (ECA), where construction will be initiated during the last quarter of 2006 and the bulk of the disturbance will occur during the winter. The other two sites will be initiated some time during 2007.

Incidental take of these dragonflies, which is expected to be extremely low--if it occurs at all, is unlikely to impact the status or recovery potential of the affected local populations because of the required conservation measures described below. In addition, and because the pygmy snaketail and extra-striped snaketail are still widely distributed across their historic range, the potential take is not expected to impact the statewide recovery potential of these species. The Saint Croix snaketail has a very limited range. The requirements listed below have also taken this into account. Therefore, the Department has determined that the proposed project is not likely to jeopardize the continued existence of the state population of these three dragonfly species or the whole plant-animal community of which they are a part.

The following requirements must be implemented to minimize take of these three dragonfly species. Because the crossing method proposed for any of the six waterways may change from those originally proposed in the Application, the requirements listed below are identified by the crossing method, rather than by the name of the waterway. These requirements may be superseded by other Federal, state or local permits, authorizations or requirements that are more stringent with the Department's approval.

### **HDD Crossing**

- Enbridge shall strictly enforce the Drilling Mud Containment, Response, and Notification Plan (Plan) submitted in their Application with the exception of those portions which conflict with the requirements listed below.
- The State Environmental Monitor shall be notified immediately if a frac-out occurs that has the potential to affect a wetland or waterbody.
- Entry and exit points shall be properly contained to prevent the loss of drilling mud, spoil or other construction materials to the waterway or adjacent wetlands.
- If there is an inadvertent release of drilling mud in an in-stream location or an adjacent wetland location, Enbridge shall initiate immediate suspension of the drilling operation.
- If there is an inadvertent release of drilling mud into or that may affect a wetland or waterbody, Enbridge in consultation with the State Environmental Monitor shall assess the nature and magnitude of the release, and its potential impact to state-listed dragonfly species.
- Enbridge in consultation with the State Environmental Monitor shall determine the appropriate methods that shall be used to reduce or eliminate the release of drilling mud.
- Enbridge in consultation with the State Environmental Monitor shall contain and/or clean up drilling mud or material contaminated with drilling mud from the waterway where feasible. Containment and clean-up or decisions regarding feasibility of containment and clean-up shall be implemented with the concurrence of the State Environmental Monitor.
- Enbridge shall retain onsite sufficient equipment and materials to respond to the inadvertent loss of drilling mud in in-stream or adjacent on land locations.
- Disturbed areas in the temporary workspace or permanent easement that are within 50 feet of the waterway crossing shall be restored to pre-construction conditions following the requirements listed below under the bulleted items: Restoration and Revegetation and Monitoring for Wet or Dry Crossings.

### **Wet or Dry Crossings**

**Water Quality Monitoring** – Enbridge shall carry out water quality monitoring to estimate the magnitude and extent of downstream sediment releases during construction. Enbridge shall submit a plan for monitoring to the Department for approval prior to initiating construction at these waterways.

**Surveys** - Enbridge shall complete dragonfly and habitat surveys initiated in August 2006 using Department-approved protocols at the appropriate time of year, including post-construction surveys for waterways identified as early construction areas. Enbridge shall submit a plan for surveys to the Department for approval prior to the 2007 survey season. The surveys shall be completed by a Department-approved biologist.

**Crossing Methods** - Enbridge shall follow conditions defined in the utility waterway crossing permits issued by the Department to minimize incidental take of state-listed dragonfly species.

**Temporary Workspace** – Enbridge has already indicated in the crossing plan provided to the National Park Service for the Namekagon River that the temporary workspace can be reduced from 100 to 15 feet.

For the remaining river crossings that will not be directionally drilled, Enbridge shall make similar reductions to the 100 foot temporary workspace or indicate to the Department why this is not technically feasible. The reduced temporary workspace shall extend to the maximum extent practicable into the riparian zone, but not less than 50 feet on either side of the river. Enbridge shall document the reduced temporary workspace to the Department prior to initiating construction at these waterways.

**Restoration and Revegetation** – Enbridge shall follow conditions defined in the utility waterway crossing permits issued by the Department with respect to restoration and revegetation to minimize incidental take of state-listed dragonfly species. In addition:

- Enbridge shall restore the bottom contours and substrate conditions of the streambed and stream banks as near as practicable to pre-construction conditions or conditions that are better for the three dragonfly species.
- Enbridge shall segregate existing topsoil in the trenchline and utilize available topsoil for restoration within 50 feet of the abovementioned waterways or as approved by the Department.
- Riparian and emergent vegetation shall be restored to pre-construction conditions or better based on Department-approved criteria that are beneficial to the three dragonfly species.
- Areas where vegetation is removed or degraded making it unlikely to revegetate to pre-construction conditions on its own shall be replanted or permanently seeded with a Department-approved native seed mix. Surfaces that require riprap or other form of stabilization shall also be included in this determination.
- Streambanks and adjacent disturbed areas within 50 feet of the abovementioned waterways shall be stabilized within 24 hours from final grading.

**Monitoring** - Enbridge shall monitor streambed, streambanks, and restoration of vegetation within the temporary and extra workspace within 50 feet of the waterway for three growing seasons following construction to ensure that the conditions described above under Restoration and Revegetation are met. If the criteria are not met during this time period, restoration and revegetation shall continue until the criteria are achieved or the Department approves otherwise. Enbridge shall submit a plan for monitoring to the Department for approval.

**Documentation** – Enbridge shall provide the Department with appropriate documentation of compliance with the abovementioned requirements.